COMPAQ

ProLiant 800 Servers Supporting Pentium II Processors and 100-MHz System Bus Setup and Installation Guide

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First Edition (April 1998)
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Compaq Computer Corporation

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About This Guide

This guide is designed to be used as step-by-step instructions for installation, and as a reference for operation, troubleshooting, and future upgrades.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
FILENAMES	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These always appear in uppercase
Type	When you are instructed *to type* information, type the information **without** pressing the **Enter** key.
Enter	When you are instructed *to enter* information, type the information and then press the **Enter** key.

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Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

WARNING: Indicates that failure to follow directions in the warning could result in bodily harm or loss of life.

CAUTION: Indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Presents clarifying information or specific instructions.

NOTE: Presents commentary, sidelights, or interesting points of information.

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.

Any surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.
WARNING: To reduce the risk of injury from electrical shock hazards, do not open this enclosure.

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Any RJ-45 receptacle marked with these symbols indicates a Network Interface Connection.
WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

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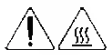	Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists. **WARNING:** To reduce the risk of injury from a hot component, allow the surface to cool before touching.

	Power Supplies or Systems marked with these symbols indicate the equipment is supplied by multiple sources of power. **WARNING:** To reduce the risk of injury from electrical shock, remove all power cords to completely disconnect power from the system.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Web Site

The Compaq Web Site has information on this product as well as the latest drivers and Flash ROM images. You can access the Compaq Web Site by logging on to the Internet at http://www.compaq.com.

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Telephone Numbers

For the name of your nearest Compaq Authorized Reseller:

In the United States, call 1-800-345-1518
In Canada, call 1-800-263-5868

For Compaq technical support:
In the United States and Canada, call 1-800-386-2172
For Compaq technical support phone numbers outside the United States and Canada, visit the Compaq Web Site at http://www.compaq.com.

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Chapter 1
Features

This manual provides information on the new Compaq ProLiant 800 server.

New Compaq ProLiant 800 servers are business-critical servers that support the following:

- Pentium II processors with 100-MHz system bus
- Dual processing
- 100-MHz registered SDRAM Error Checking and Correcting (ECC) memory upgradeable to 512 megabytes
- Four 1" or 1.6" Non-Hot Plug Drive Cage
- Two available removable media bays
- Integrated Wide-Ultra SCSI-3 Controller
- Six available PCI slots

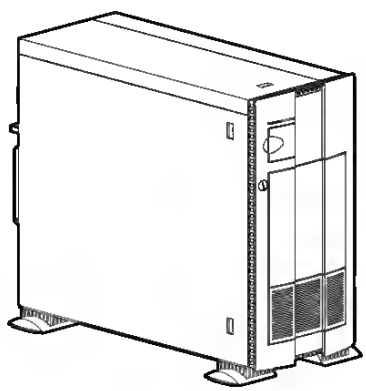

Figure 1-1. Compaq ProLiant 800 server

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Customer Support

Compaq servers are backed by comprehensive and flexible customer support programs. See the previous chapter, "Using This Guide," to locate the Compaq Authorized Reseller or Service Provider nearest you.

Refer to your SmartStart and Support Software CD for information on Compaq Service Providers and Authorized Compaq Resellers in your area.

Standard Features

The following features are standard on the new ProLiant 800 server, unless otherwise noted.

Processors and System Memory

- Standard as a single-processor unit with one Intel Pentium II Processor with integrated 512-KB Level 2 Cache on the Compaq system board
- Error Checking and Correcting (ECC) for memory error detection and correction
- 64-MB, 100-MHz, registered SDRAM DIMM populating one DIMM socket, 64-bit system memory expandable to 512 MB
- Supports 32-, 64-, or 128-MB, 100-MHz, registered SDRAM DIMMs
- Supports up to three additional DIMMs
- DIMMs may be installed one at a time

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Expansion Slots

- Six expansion slots: two dedicated PCI slots and four shared PCI/ISA slots
- The PCI bus provides peripheral transactions at a system clock speed of up to 33 MHz

Disk Controller

- Integrated Wide-Ultra SCSI-3 Controller on the PCI local bus. The controller provides one SCSI bus capable of handling up to six non-hot-pluggable SCSI devices or seven external drives without using an expansion slot. This controller performs at a maximum data transfer rate of 40 megabytes per second (MB/s).
- Optional controller boards for controller duplexing or expanding storage capacity are available. Optional boards are the SMART-2SL Array Controller, SMART-2DH Array Controller, SMART-2/P Array Controller, and Wide-Ultra SCSI Controller.
- For information concerning the SCSI hard drive installation, refer to the Systems Reference Library CD included in the Reference Information pack.

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Network Controller

- Compaq Netelligent 10/100 TX Embedded UTP Controller with autosensing capability on the PCI local bus
- Provides the RJ-45 connector for 10BaseT or 100TX Ethernet

For information concerning the integrated network controller, refer to the Systems Reference Library CD included in the Reference Information pack.

Mass Storage

Maximum of eight internal drive bays (four in removable media drive area and four in drive cage):

- One-third height, dedicated removable media drive bay occupied by 1.44-MB diskette drive
- One-half height, removable media drive bay occupied by IDE 24X CD-ROM drive
- Two available half-height, 5.25" removable media drive bays

The server supports up to four 1" or 1.6" non hot-plug drives in the front drive cage.

Standard Interfaces

- Integrated Wide-Ultra SCSI-3 Controller
- Serial (2)
- Video
- Parallel
- Keyboard
- Mouse
- Compaq Netelligent 10/100 TX Embedded UTP Controller with autosensing capability on the PCI local bus

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Video

- Integrated Video Controller provides maximum resolution of 1024 x 768 non-interlaced resolution at 256 colors.
- Supports SVGA, VGA, and EGA graphics resolution
- 1-MB video memory

ROM

- Software upgradable firmware
- ROMPaq Utility used to upgrade ROM

Power Supply

- 325-W power supply

Warranty

- Three-Year On-Site Limited Worldwide Warranty
- Pre-Failure warranty on processors, memory, and hard drives

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Server Configuration and Management

Compaq servers offer an extensive set of features and optional tools to support effective server management and configuration:

- Compaq SmartStart
- Server Management
- Compaq Insight Manager
- Compaq System Configuration Utility
- Compaq Integrated Remote Console
- Compaq Integrated Management Log

Compaq SmartStart

SmartStart, located on the SmartStart and Support Software CD, is the intelligent way to configure your Compaq server with Novell, Microsoft, SCO, and IBM system software. SmartStart uses a step-by-step process to configure the server and to load the system software, thereby achieving a well-integrated server to ensure maximum dependability and supportability. The SmartStart and Support Software CD also holds the Compaq System Configuration Utility and ROMPaq. For information concerning SmartStart, refer to the Server Setup and Management pack included in the shipping box.

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Server Management

Server management features provide in-depth monitoring, analysis, and control of the fault-tolerance, performance, and configuration aspects of the servers. Server management features include:

- Server Parameter Tracking
- Server Fault Tolerance
- Recovery Services
- Remote Services Features

For information concerning server management features, refer to the Systems Reference Library CD included in the shipping box.

Compaq Insight Manager

Compaq Insight Manager, which is loaded from the Compaq Management CD, is an easy-to-use software utility for collecting server information. Insight Manager performs the following functions:

- Forwards server alerts fault conditions
- Monitors fault conditions and server performance
- Controls server security and configuration
- Remotely controls servers
- Initiates rapid recovery services

In Compaq servers, each hardware subsystem, such as disk storage, system memory, and system processor, has a robust set of management capabilities. The Compaq Full-Spectrum Fault Management prevents faults before they happen, keeps the system up and running in the unlikely event of a failure, and delivers rapid server recovery to normal operation after a fault. For information concerning Compaq Insight Manager, refer to the Server Setup and Management pack included in the shipping box.

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Compaq System Configuration Utility

The Compaq System Configuration Utility performs a wide range of configuration activities including the following:

- configures PCI boards automatically
- provides switch and jumper settings
- resolves resource conflicts in areas such as memory, port addresses, and interrupts (IRQs)
- manages the installation of memory, processor upgrades, and mass storage devices such as hard drives, tape drives, and diskette drives
- sets and stores power-on features like date and time
- stores configuration information in nonvolatile memory
- assists in the installation of the operating system
- assists in running diagnostic tools such as TEST and INSPECT Utilities

The first time the server is configured, the SmartStart program automatically creates a system partition and installs the System Configuration Utility and other Compaq utilities in that partition. For information concerning this utility, refer to the SmartStart documentation and the Systems Reference Library CD included in the shipping box.

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Compaq Integrated Remote Console

The standard Compaq Integrated Remote Console (IRC) performs a wide range of configuration activities, including the following:

- accessible using ANSI terminal
- operates independently of the operating system
- provides for remote server reboot
- provides access to system configuration
- uses out-of band communication with dedicated management modem installed in the server

For information concerning the standard Integrated Remote Console, refer to the *Integrated Remote Console User Guide* included in the shipping box.

Compaq Integrated Management Log

The standard Compaq Integrated Management Log (IML) records events and stores them in an easily viewable form. The Integrated Management Log records hundreds of events and then marks each event with a time-stamp with one-minute granularity.

For information concerning the Integrated Management Log, see Chapter 6, "Integrated Management Log."

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Security Features

Security features are:

- Keyboard Password
- Administrator Password
- Network Server Mode
- QuickLock
- Diskette Drive Control
- Diskette Write Control
- Diskette Boot Override
- Serial Interface Control
- Parallel Interface Control
- Configuration Lock
- Security Lock Provision

These security features are established through the Compaq System Configuration Utility. For information concerning server security features, refer to the Systems Reference Library CD and the SmartStart and Support Software CD included in the shipping box.

Diagnostic Tools

The software and firmware diagnostic tools available for your use are:

- Power-On Self-Test (POST)
- Diagnostics (DIAGS)
- ROMPaq utilities to upgrade flash ROMs
- Automatic Server Recovery (ASR-2)

For information concerning Compaq diagnostic tools, refer to the Systems Reference Library CD included in the Reference Information pack of the shipping box.

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Front Panel Components

Figure 1-2 and Table 1-1 show and describe the components on the front panel of the server.

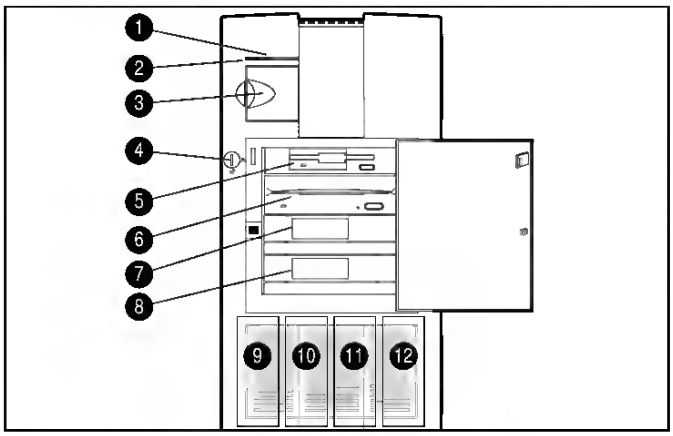

Figure 1-2. Identifying front panel components

Table 1-1
Front Panel Components

Ref.	Component	Ref.	Component
1	SCSI Activity LED	7	Blank Removable Media Bay
2	Power LED	8	Blank Removable Media Bay
3	Power On/Off Button	9	Drive Cage Position 3
4	Keylock for Front Bezel	10	Drive Cage Position 2
5	Diskette Drive	11	Drive Cage Position 1
6	CD-ROM Drive	12	Drive Cage Position 0

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Rear Panel Components

Figure 1-3 and Table 1-2 show the components on the rear panel of the server.

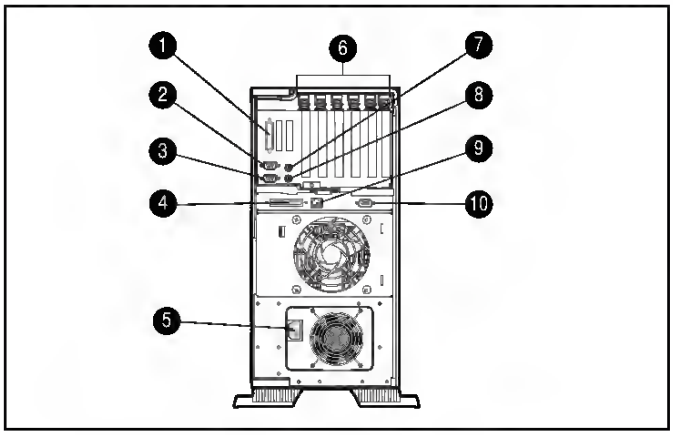

Figure 1-3. Rear panel of ProLiant 800

Table 1-2
Rear Panel Components

Ref.	Connector	Ref.	Connector
1	Parallel Connector	6	PCI/ISA Expansion Slots
2	Serial Connector	7	Mouse Connector
3	Serial Connector	8	Keyboard Connector
4	External SCSI Connector (B)	9	RJ-45 Ethernet Connector with 3 NIC LEDs: Active, Link, and 10/100 Speed
5	Power Connector	10	Video Connector

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Server Backplane

Figure 1-4 and Table 1-5 show the connectors on the backplane of the server.

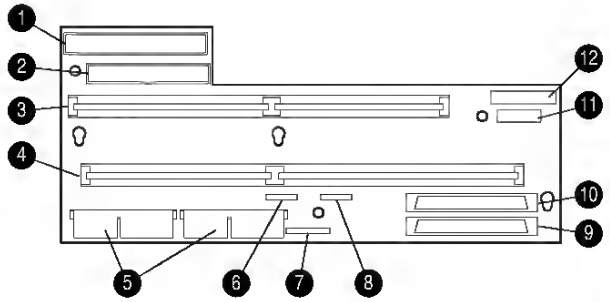

Figure 1-4. Server backplane

Table 1-3
Server Backplane

Ref.	Backplane Connector	Ref.	Backplane Connector
1	CD-ROM	7	Fan
2	Diskette	8	Power Supply
3	Expansion System Board	9	Reserved
4	Processor Board	10	SCSI Bus (A)
5	Power Supplies		
6	LED		

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Chapter 2
Overview of Installing the ProLiant 800 Server

The following instructions are provided as an overview for first-time installation of your server. If you have any problems, contact your Authorized Compaq Reseller.

Installation Sequence

The following sequence should be performed when installing your server for the first time.

1. **Select a site and unpack the server, keyboard, mouse, and monitor** (monitor not supplied).
2. **Install any PCI expansion boards.** Refer to Chapter 4, "Overview of Installing Hardware Options." See the options kits for detailed instructions.

   NOTE: ISA expansion boards are installed after System Configuration utility has been run.

3. **Connect cables:** keyboard, mouse, monitor, network, and power.
4. **Install other options:** additional memory, hard drives, expansion boards, and external storage devices. See Chapter 4, "Overview of Installing Hardware Options." See the options kits for detailed instructions. You will need to run the System Configuration Utility after you install hardware options, with the exception of additional memory and most PCI boards. Run the Compaq System Configuration Utility, which is located on the SmartStart and Support Software CD, during the SmartStart portion of the installation sequence. Refer to the Server Setup and Management pack shipped with your server.
5. **Set switches:** processor board switches, system board switches, and SCSI ID settings, if changes are required. See Chapter 4, "Overview of Installing Hardware Options."

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6. **Turn on the server and insert the SmartStart and Support Software CD to configure.** When the server boots from the SmartStart program, it automatically starts the System Configuration Utility. For SmartStart and Support Software CD initialization procedures, refer to the Server Setup and Management pack shipped with your server.
7. **Install Compaq Insight Manager to manage the server.** For Compaq Management CD initialization procedures, refer to the Server Setup and Management pack shipped with your server.
8. **Register your server.** For server registration information, refer to the Server Setup and Management pack shipped with your server.

NOTE: When the server boots from the SmartStart program, the server automatically starts the System Configuration Utility. When the utility is completed, you will be prompted to turn the server off, install any ISA boards (any switch settings required will be provided by the System Configuration Utility), and then boot the server again from the SmartStart program.

Selecting a Site

Make sure that the installation site you select has the following features:

- Sturdy, level installation site that includes dedicated and properly grounded circuits, air conditioning, and static electricity protection
- 3-inch (7.6-cm) clearance at front and back of server for proper ventilation
- Separate electrical circuit for the server

WARNING: This equipment is designed for connection to a grounded AC outlet. The grounding type plug is an important safety feature. To reduce risk of electric shock or damage to your equipment, do not disable this feature.

CAUTION: Make sure that the power outlet you plug your power cord into is easily accessible and is located as close to the equipment operator as possible. When you need to disconnect power from the equipment, be sure to unplug the power cord from the

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power outlet.

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CAUTION: Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply (UPS). This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

Unpacking

Unpack the server, keyboard, and cables according to the instructions and illustrations printed on the shipping carton(s).

Locating Materials

Locate the following materials that were shipped with your new server:

- Compaq ProLiant 800 server
- Keyboard
- Mouse
- Power cord
- Wide to Standard SCSI adapter (not needed if installing Wide SCSI devices)
- Documentation inside the server (most of the option installation and setup instructions are located on the labels, which are attached to the inside of the large access panel and the small access panel)
- Documentation and software packs inside the shipping box: Server Setup and Management, Reference Information, and Software Products

In addition to these supplied items, you may need:

- T-15 Torx screw driver
- Options to be installed such as expansion boards, monitors, uninterruptible power supply (UPS), or memory
- Application software diskettes

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Installing Expansion Boards and Other Major Hardware Options

See Chapter 4, "Overview of Installing Hardware Options," to install PCI expansion boards and other major hardware options.

The following major hardware options are available for the ProLiant 800 server and may be obtained from your local Compaq Reseller or Authorized Compaq Service Provider. This guide covers only the installation of a typical expansion board, hard drive, memory, SCSI devices, and a second processor.

- Memory
- Additional Pentium II processor and processor power module
- Wide-Ultra SCSI-3 Controller boards
- Tape drives

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Connecting the Power Cord and Peripheral Devices

After all internal hardware options have been installed in the server, connect the power cord and peripheral devices to the connectors located on the rear panel of the server. See Chapter 4, "Overview of Installing Hardware Options," or see the options kits for detailed instructions.

WARNING: To reduce the risk of electrical shock or fire, do not plug telecommunications/telephone connectors into the Network Interface Card (NIC) receptacles.

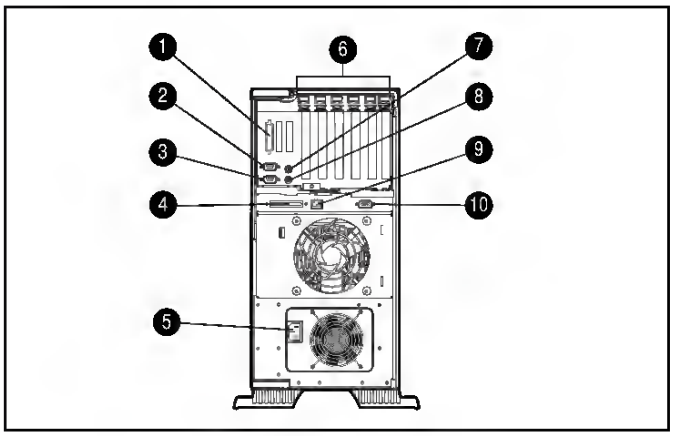

Figure 2-1. Rear panel of ProLiant 800

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Table 2-1
Rear Panel Connections

Ref.	Connector	Ref.	Connector
1	Parallel Connector	6	PCI/ISA Expansion Slots
2	Serial Connector	7	Mouse Connector
3	Serial Connector	8	Keyboard Connector
4	External SCSI Connector (B)	9	RJ-45 Ethernet Connector with 3 NIC LEDs: Active, Link, and 10/100 Speed
5	Power Connector	10	Video Connector

Powering Up the Server

After the cables have been connected to the server, you are ready to power up the ProLiant 800 server as shown in Figure 2-2.

WARNING: Be sure that the power outlet you plug your power cord into is easily accessible and located as close to the equipment operator as possible. When you need to disconnect power to the equipment, be sure to unplug the power cord from the power outlet.

NOTE: Do not place anything on power cords or cables. Arrange them so that no one may accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

1. Slide the power switch cover plate ❶ to the right.
2. Press the power switch ❷.

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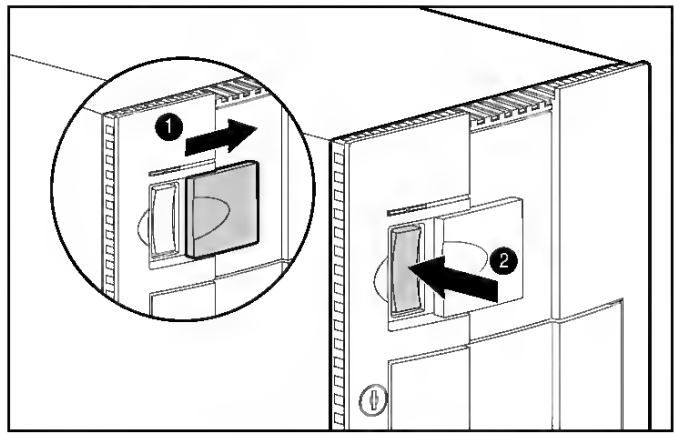

Figure 2-2. Turning on power to server

Configuring the Server with SmartStart

SmartStart is the intelligent way to configure the server and to load the system software, thereby achieving a well-integrated server to ensure maximum dependability and supportability. The SmartStart and Support Software CD holds the Compaq System Configuration Utility and ROMPaq. To use the SmartStart and Support Software CD, refer to the Server Setup and Management pack included in the shipping box.

The Compaq System Configuration Utility performs a wide range of configuration activities including the following:

- Configures PCI boards automatically
- Provides switch and jumper settings
- Resolves resource conflicts in areas such as memory, port addresses, and interrupts (IRQs)
- Manages the installation of memory, processor upgrades, and mass storage devices such as hard drives, tape drives, and diskette drives
- Sets and stores power-on features like date and time

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- Stores configuration information in nonvolatile memory
- Assists in the installation of the operating system
- Assists in running diagnostic tools such as TEST and INSPECT Utilities

The first time the server is configured, the SmartStart program automatically creates a system partition and installs the configuration utility and other Compaq utilities in that partition.

To install the SmartStart and Support Software CD:

1. With your server turned on, open the removable media access door by pressing on the left side of the door ❶. Fully open the door ❷ to access the CD-ROM drive.

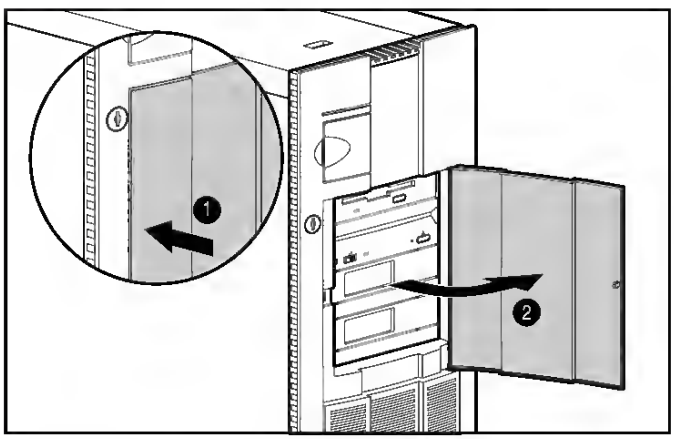

Figure 2-3. Opening the removable media access door

2. Locate the SmartStart and Support Software CD in the Server Setup and Management pack.

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3. Insert the SmartStart and Support Software CD in the CD-ROM drive, handling the CD by its edges, not by the flat surfaces of the disc.

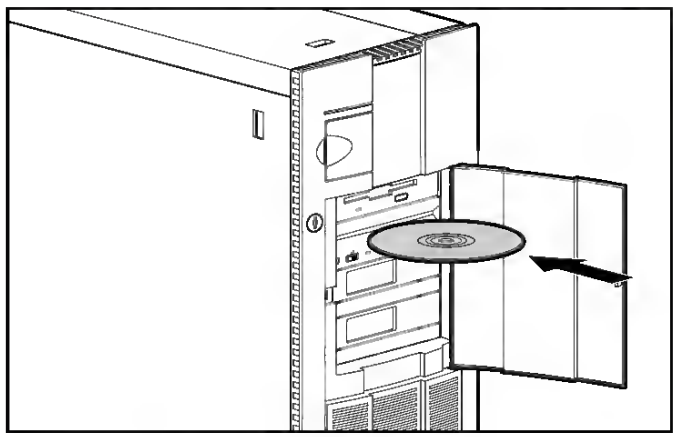

Figure 2-4. Inserting the CD-ROM

4. When the busy indicator turns green, the SmartStart installation sequence will begin. Refer to the SmartStart documentation included in the Server Setup and Management pack, which is shipped with your server, to configure the system and load the operating system.

To manage the system, refer to the Compaq Management CD provided in the Server Setup and Management pack shipped with your server.

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Using Diagnostics Tools

The software and firmware diagnostic tools available for your use are:

- Power-On Self-Test (POST)
- Diagnostics (DIAGS)
- ROMPaq utilities to upgrade flash ROMs
- Automatic Server Recovery (ASR-2)

For information concerning Compaq diagnostic tools, refer to the Systems Reference Library CD included in the Reference Information pack of the shipping box.

Registering Your Server

You can register your server during the SmartStart configuration process. Refer to the Server Setup and Management pack included in the shipping box.

Routine Maintenance

For information concerning routine maintenance and safety precautions, refer to the Systems Reference Library CD included in the Reference Information pack of the shipping box.

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Chapter 3
Overview of Installing Hardware Options

For complete hardware option installation instructions, refer to the installation documentation that came with the option kit. For an illustrated overview of installing many Compaq option upgrades, refer to the *Hardware Installation and Configuration* poster included in the shipping box, or to the installation labels located on the inside of the large access panel and on the small access panel. If you have any problems, contact your Authorized Compaq Reseller. The new server chassis facilitates the installation of hardware upgrades. Most hardware options are installed on the expansion system board, on the processor system board, and in the drive bay area. Use the following table to determine how to gain access to internal server components.

Table 3-1
Gaining Access to Internal Components

To Gain Access To:	You Will Need To:
Back of drive bays	Open the front bezel* and remove the large access panel
Expansion I/O slots	Open the front bezel* and remove the small access panel
Expansion system board	Open the front bezel* and remove the small access panel
Front of media drive bays	Open the front bezel*
Internal SCSI cable	Open the front bezel* and remove the large access panel
Internal SCSI connector	Open the front bezel* and remove the large access panel
Memory (DIMM)	Remove the processor cage**
Second Pentium II processor (CPU)	Remove the processor cage**
Switches for processor components	Remove the processor cage**

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** If security screw is installed (as shipped) then open the front bezel and remove the large access panel in order to remove the security screw before attempting to remove the processor cage.

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WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

WARNING: To reduce the risk of injury or damage to the equipment when installing options, ensure that the power to the server is turned off and that the AC power cord is disconnected.

CAUTION: Electrostatic discharge can damage electronic components. Be sure you are properly grounded before beginning any installation procedure. See Appendix A, "Electrostatic Discharge," for more information.

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Opening the Front Bezel of the ProLiant 800

To open the front bezel of the ProLiant 800:

1. If the keylock is locked, turn the keylock.
2. Open the front bezel (front door) to the right.

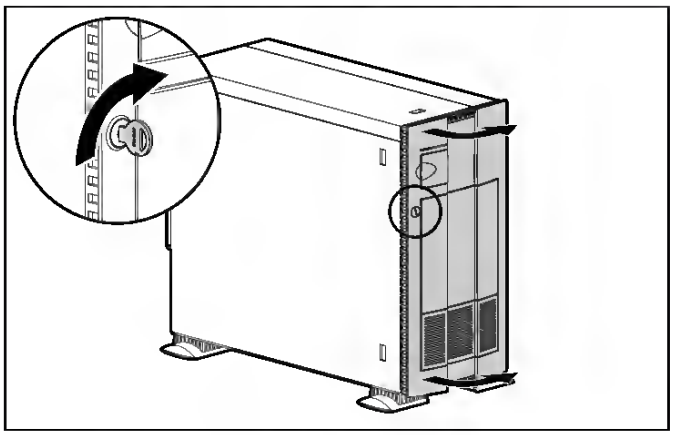

Figure 3-1. Opening the front bezel

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Removing the Small Access Panel

> **CAUTION:** Do not operate the server with the small access panel removed. This panel is an integral part of the cooling system and removing it while the system is running may adversely affect data integrity.

To remove the small access panel:

1. If the computer is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment connected to the computer.
3. If required, open the front bezel.
4. Loosen the top thumbscrew.
5. Slide the small access panel toward the rear of the unit about 0.5 inch (1.5 cm), and then slide the panel to the side of the server. See Figure 3-2.
6. Lift and remove the panel.

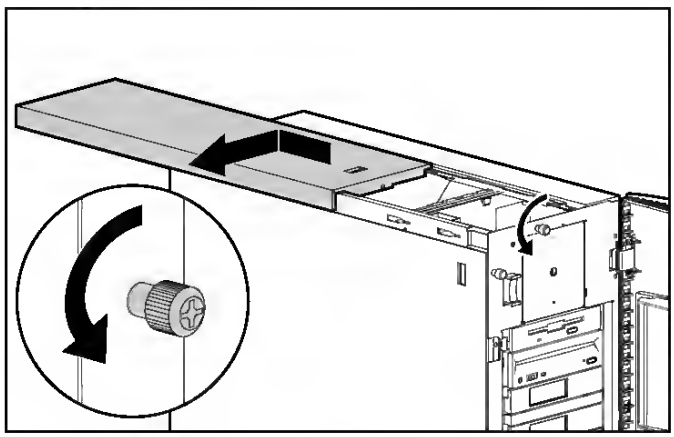

Figure 3-2. Sliding the small access panel

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7. Turn the small access panel over to locate the Expansion I/O Board Cage Labels. These labels provide instructions on installing expansion boards and setting system board switches.
8. Set the panel aside, and locate the expansion system board and expansion slots inside the chassis.

Removing the Large Access Panel

CAUTION: Do not operate the server with the large access panel removed. This panel is an integral part of the cooling system and removing it while the system is running may adversely affect data integrity.

To remove the large access panel:

1. If the computer is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment connected to the computer.
3. Open the front bezel.
4. Loosen the two thumbscrews located on the left side of the front chassis.
5. Slide the large access panel toward the rear of the unit 0.5 inch (1.5 cm).
6. Lift and remove the panel.

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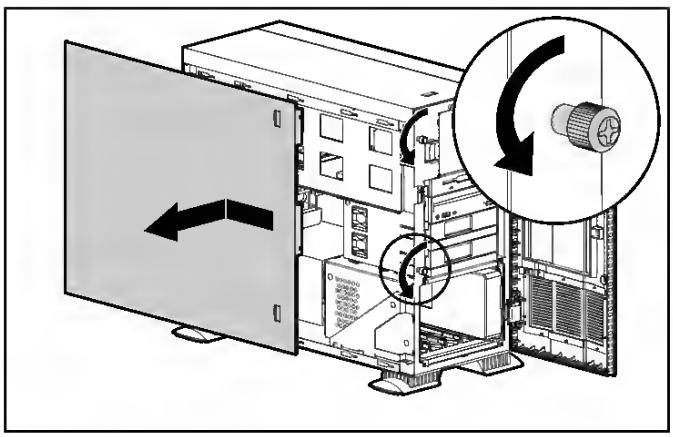

Figure 3-3. Removing the large access panel

7. Turn the large access panel over to locate the Processor Cage Configuration Label and the Drive Configuration Label. These labels provide information on installing processor board options, configuring drives, installing drives, and setting switches.

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Understanding the Security Provisions

The ProLiant 800 server is equipped with unique security access provisions including: one keylock for the front bezel, one security screw for the expansion I/O board cage, and one security screw for the processor cage.

Security Screws Preinstalled in ProLiant 800

Figure 3-4 shows the location of the two security screws. If you need to remove the processor cage or the expansion I/O board cage, make sure that you remove the corresponding security screws first.

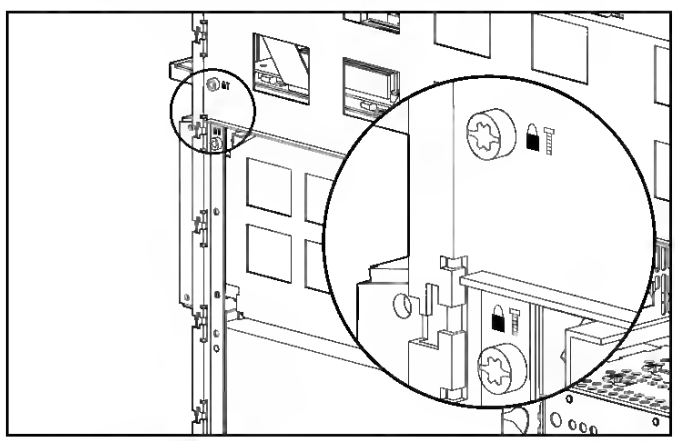

Figure 3-4. Security screws with exploded view of processor cage screw

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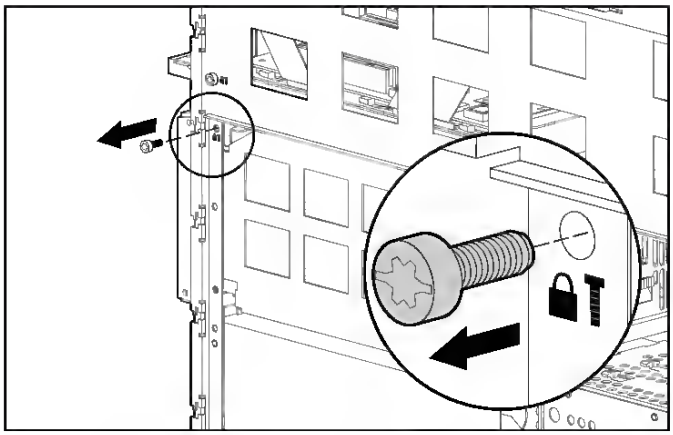

Figure 3-5. Security screws with exploded view of removing processor cage screw

Front Bezel Keylock for ProLiant 800

To use the front bezel keylock on the ProLiant 800, close the front bezel and turn the keylock to lock the bezel.

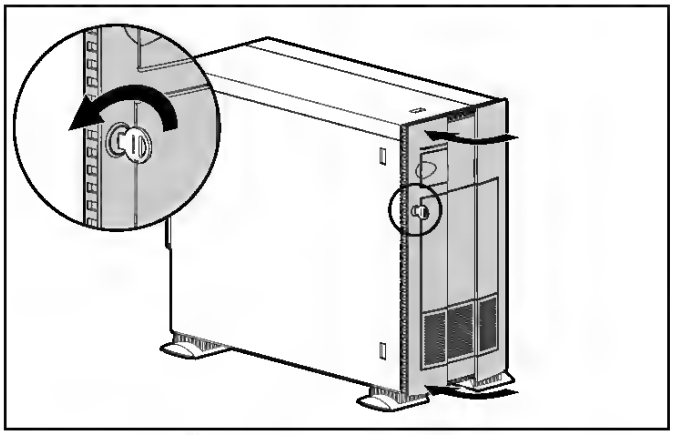

Figure 3-6. Securing ProLiant 800 front bezel with keylock

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Removing and Replacing the Processor Cage

The processor cage holds the Compaq system board configured with a 64-MB, 100-MHz, registered SDRAM DIMM, a Pentium II processor, a processor power module, switches, and connectors.

To remove the cage:

1. If the computer is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment connected to the processor cage.

> **CAUTION:** If a security screw is installed in the left side of the processor cage, remove the screw before opening the cage. See Figure 3-5.

3. Open the processor cage by first pressing up on the locking lever ❶ to unlock the cage and then pulling on the outer end of the release lever ❷ to slide out the cage from the chassis.

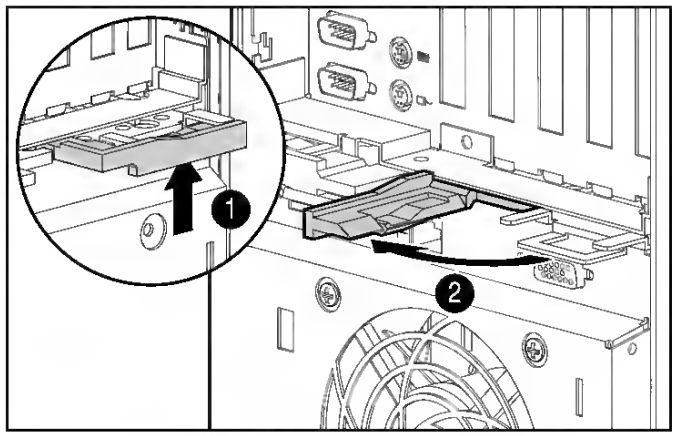

Figure 3-7. Releasing the levers of the processor cage

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4. Remove the processor cage.

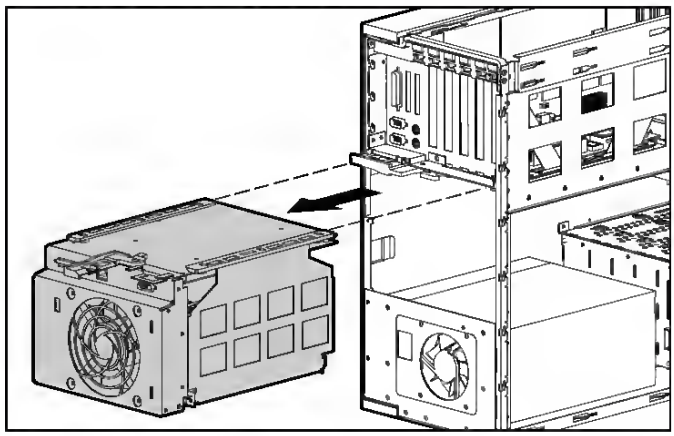

Figure 3-8. Removing the processor cage

5. Turn the cage over, loosen the thumbscrew, and lift the cover to locate the processor and memory components.

6. For installation of these components, refer to the *Hardware Installation and Configuration Poster* included in the shipping box or to the Processor Cage Configuration Label located on the inside of the large access panel.

7. To reassemble the server, reverse steps 1 through 5.

NOTE: If you inadvertently removed the processor cage without turning OFF the power switch, the server automatically powers down. This is not, however, a recommended procedure for powering off the server.

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Locating the Expansion Board Slot Locations

The server has six expansion slots located in the expansion I/O board cage, which is located directly beneath the small access panel:

- Four shared PCI/ISA expansion slots (slots 1 - 4)
- Two dedicated PCI local bus expansion slot (slots 5 - 6)

NOTE: Although there are two physical connectors (one ISA and one PCI) for each shared PCI/ISA slot, the connectors are placed so that only one of the connector slots can have a board installed at a time.

Expansion boards can be installed in the following expansion slot locations.

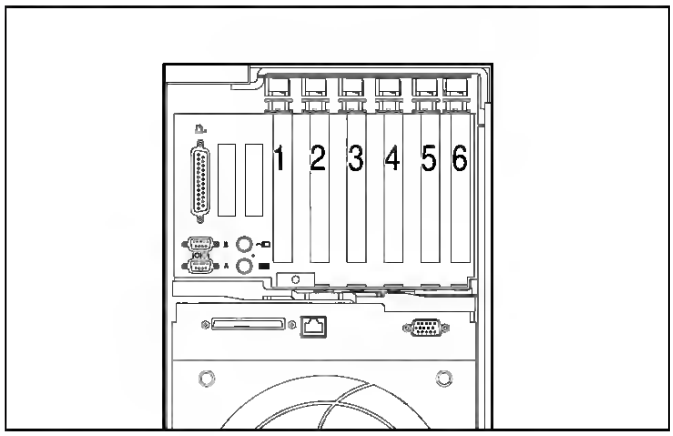

Figure 3-9. Location of expansion slots

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Installing an Expansion Board

To install an expansion board, such as a drive array controller or video board, refer to one of the following installation sources:

- For a text and illustrated procedure, refer to the installation documentation that came with the option kit.
- For a text overview of the procedure, refer to the procedure below.
- For an illustrated overview of the procedure, refer to the *Hardware Installation and Configuration* poster included in the shipping box or to the Expansion Board Installation Label located on the inside of the small access panel.

The expansion slots may be populated in any order. Slots 4, 5, and 6 are connected to the primary PCI bus. Slots 1, 2, and 3 are connected to the secondary PCI bus.

1. If the server is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment connected to the computer.
3. Remove the small access panel.
4. Press on the top ❶ of the expansion slot latch and open the latch toward the rear ❷ of the expansion slot cage.
5. Remove the expansion slot cover ❸.

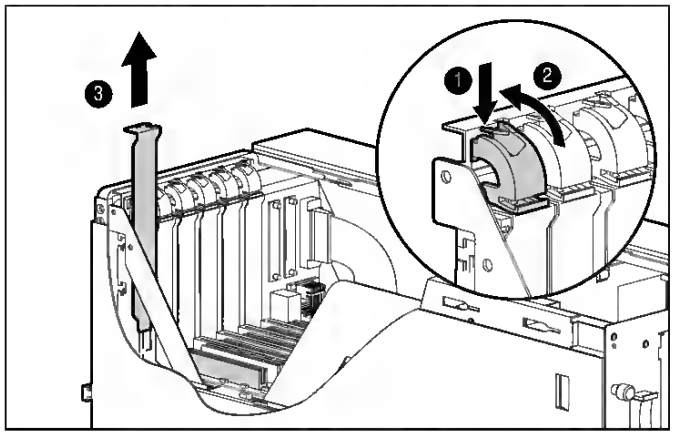

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Figure 3-10. Opening expansion slot latch and removing slot cover

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6. Insert the expansion board.

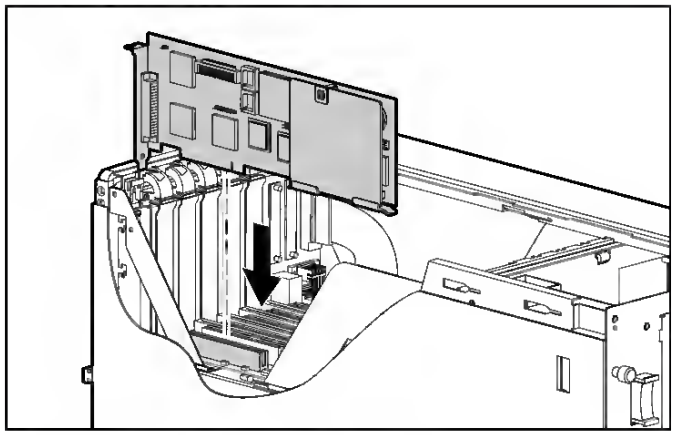

Figure 3-11. Inserting expansion board

7. Close the expansion slot latch to secure the board.

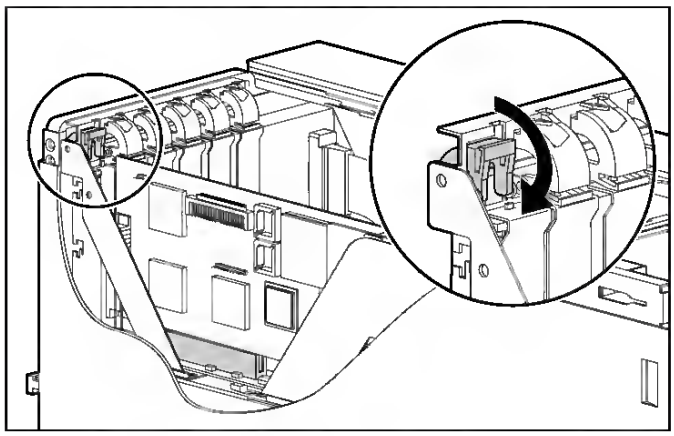

Figure 3-12. Securing Expansion Board

8. Close the server and reconnect all cables.
9. Turn on the computer.
10. Run the Compaq System Configuration Utility, if necessary.

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Installing More Memory

You can expand computer memory by installing industry standard registered Synchronous DRAM (SDRAM) Dual Inline Memory Modules (DIMMs) on the Compaq system board. The following guidelines must be followed when installing additional memory:

- Use only 32-MB, 64-MB, or 128-MB; 100-MHz, registered SDRAM DIMMs.
- The DIMM sockets may be populated in any order.

CAUTION: Use only Compaq DIMMs. DIMMs from other sources may adversely affect data integrity.

To install more memory, refer to one of the following installation sources:

- For a text and illustrated procedure, refer to the installation documentation that came with the option kit.
- For a text overview of the procedure, refer to the procedure below.
- For an illustrated overview of the procedure, refer to the *Hardware Installation and Configuration* poster included in the shipping box or to the processor cage Configuration Label located on the inside of the large access panel.

To install a Compaq DIMM:

1. If the computer is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment connected to the computer.
3. Remove the processor cage.
4. Place the processor cage, component side up, on a flat surface.
5. Locate the appropriate DIMM socket on the system board.
6. Align the key slot on the bottom edge of the DIMM ❶ with the tab in the DIMM socket, open the DIMM socket latches, and insert DIMM into the socket. The following figure shows installing DIMM on the Compaq system board, next to the preinstalled system memory.

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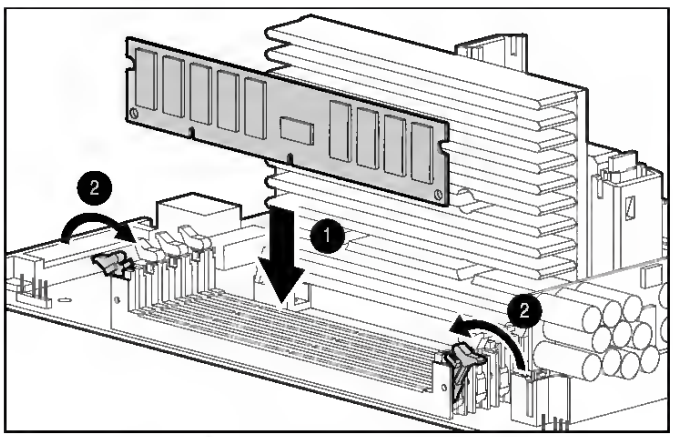

Figure 3-13. Installing DIMM memory modules on Compaq system board

NOTE: DIMM can only be installed in one way. Match the notch on the module with the tab on the memory socket. Push the module down into the socket, ensuring that the module is fully inserted and properly seated.

7. Close the DIMM socket latches ❷.
8. Reassemble the server.
9. Reconnect any external peripherals and the power cord.
10. Turn on the server.

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Installing Additional Mass Storage Devices

The server is shipped standard with a total of six available non-hot-pluggable drive bays for installing additional internal mass storage devices. SCSI devices such as diskette, tape, or hard drives can be installed in the vacant removable media drive bays (SCSI IDs 4 and 5). You can install up to four 1-inch or
1.6-inch hard drives in the non-hot-plug drive bays (SCSI IDs 0 - 3).

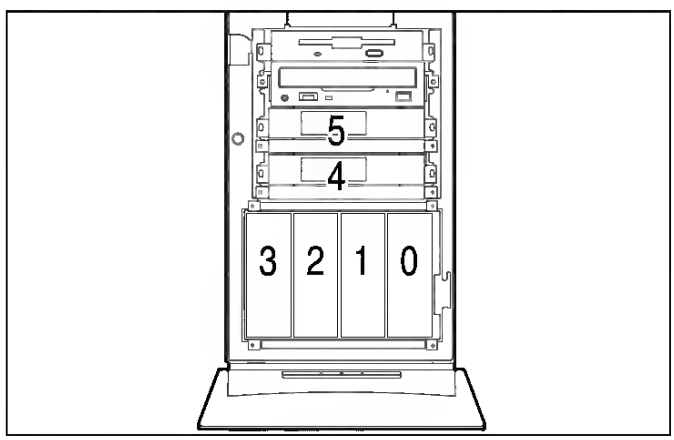

Figure 3-14. SCSI ID Locations

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SCSI Hard Drive Installation Guidelines

The following guidelines should be noted when adding SCSI hard drives. See Chapter 4, "SCSI Cabling Instructions for Mass Storage SCSI Devices," for additional information.

- As a general rule, a maximum of seven SCSI devices may be added per controller. Because of each server's physical and configuration constraints, the maximum number will be different.
- You must set the SCSI ID manually on each drive to a unique value in the range of 0 to 6. Consult the documentation that came with the drive for instructions on setting the SCSI ID.
- If only one SCSI hard drive is used, it should be installed in the lowest-numbered bay.
- Compaq SCSI non-hot-plug cables are terminated. Be sure to remove all terminating jumpers from third-party SCSI devices.
- Drives may be Fast-SCSI-2, Fast-Wide SCSI-2, Wide-Ultra SCSI-3, or a mixture of the three in servers and storage systems.
- Drives should be the same capacity to provide the greatest storage space efficiency when drives are grouped together into the same drive array.
- Run System Configuration Utility after installing a drive.

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Installing Mass Storage Devices in the Removable Media Drive Bays

All server models ship standard with four non-hot-pluggable, removable media drive bays. The top two bays are occupied with a 3.5-inch diskette drive and an IDE CD-ROM drive; the bottom two half-height 5.25-inch bays are vacant.

Two half-height removable storage devices such as tape or hard drives can be installed in the bottom two removable media drive bays. Also, one full-height storage device can be installed in the area occupied by the bottom removable media drive bays. To install a device in this area and to cable the device, refer to the installation documentation that came with the drive. Also, see Chapter 4, "SCSI Cabling Instructions for Mass Storage SCSI Devices," for SCSI cabling information. The illustrations below provide only an overview of removing the blank panel and installing a storage device.

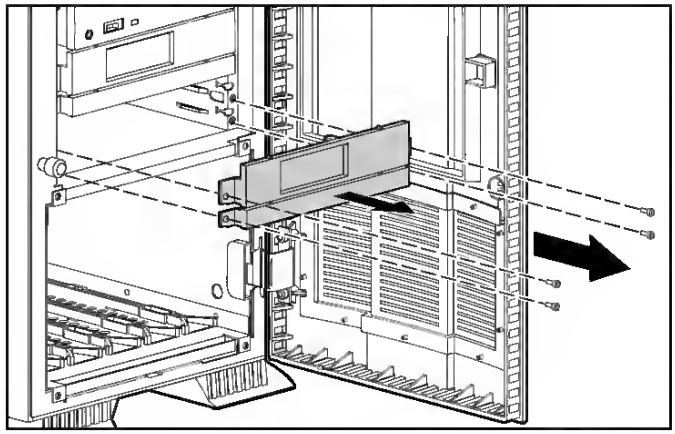

Figure 3-15. Removing blank panel

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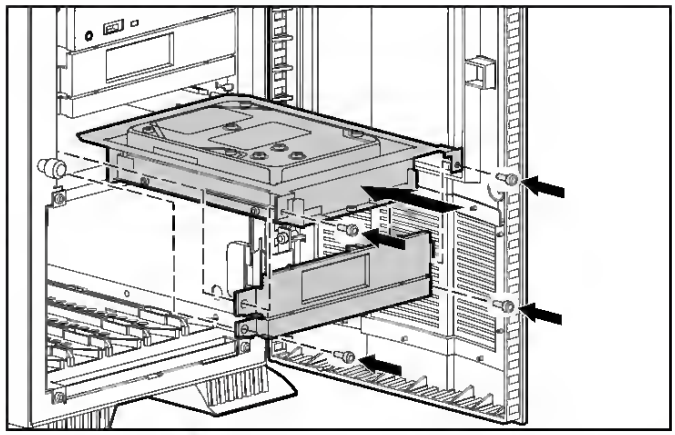

Figure 3-16. Installing hard drive and blank panel in removable media area

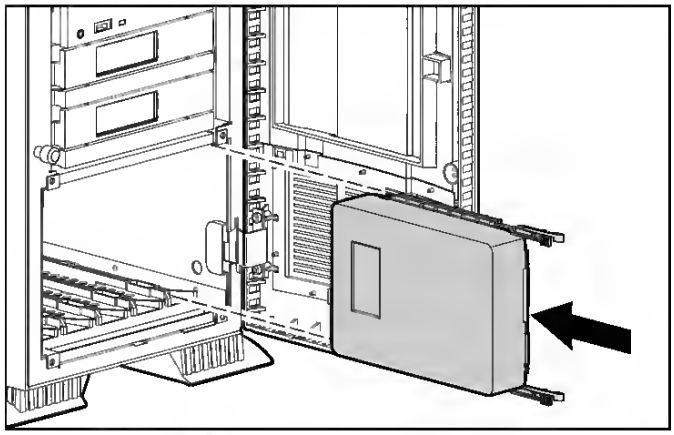

Figure 3-17. Installing hard drive in drive cage

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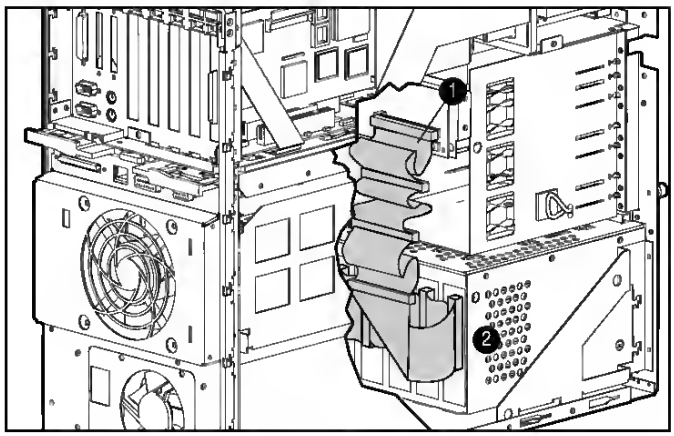

Figure 3-18. SCSI bus connector ❶ attached to removable media area and drive cage ❷

The shaded cable ❶ in Figure 3-17 is the SCSI cable connected from the SCSI bus to the removable media area and the drive cage.

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Installing External Storage Devices

Optional mass storage devices can be connected to the server by using the external SCSI connector on the back of the unit, or by using an optional Wide-Ultra SCSI-3 Controller board. To install an external storage device to the external SCSI connector, refer to the installation documentation that came with the external storage device. Also, see Chapter 4, "SCSI Cabling Instructions for Mass Storage SCSI Devices," for additional cabling information. The following illustration provides only an overview of this installation.

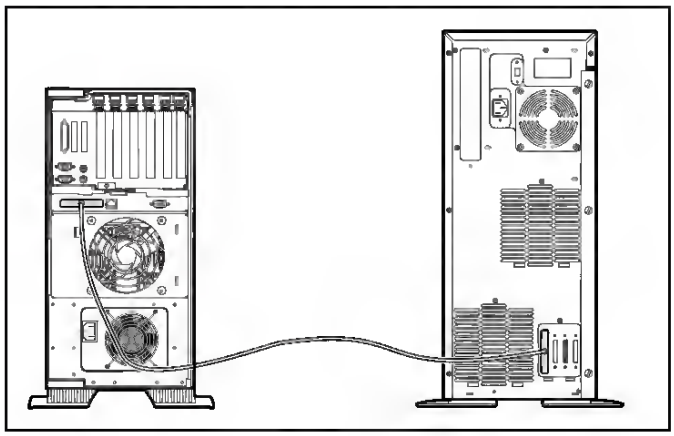

Figure 3-19. Connecting external mass storage device

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Installing a Second Processor (CPU)

To install a second processor, refer to one of the following installation sources:

- For a text and illustrated procedure, refer to the installation documentation that came with the option kit.
- For a text overview of the procedure, refer to the procedure below.
- For an illustrated overview of the procedure, refer to the *Hardware Installation and Configuration* poster included in the shipping box or to the Processor Cage Configuration Label located on the inside of the large access panel.

To install a second processor:

1. If the server is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment connected to the computer.
3. Remove the processor cage, turn it over, and loosen the thumbscrew to open the cage.
4. Install the processor in the vacant Slot 1 socket and the processor power module in the PPM socket next to the Slot 1 socket. Close the latches.

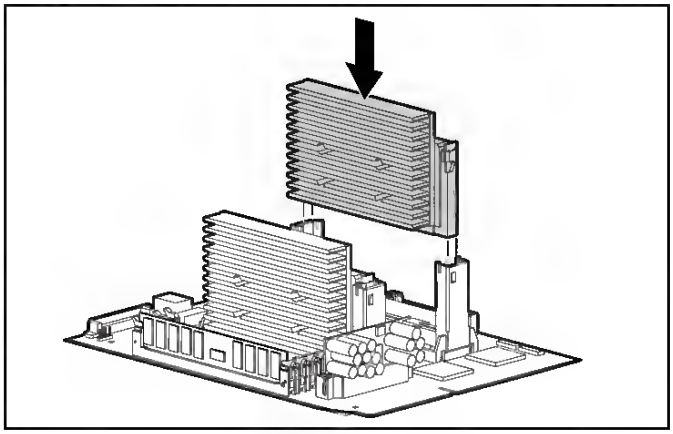

Figure 3-20. Installing the second processor

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5. If required, set the processor bus/core frequency switch on the Compaq system board.
6. Reassemble the server.
7. Reconnect any external peripherals and the power cord.

Board Layouts

These illustrations provide information to locate switches, LEDs, connectors, board slots, and other board components. This information is also provided on the access panel labels located inside your server.

Expansion System Board

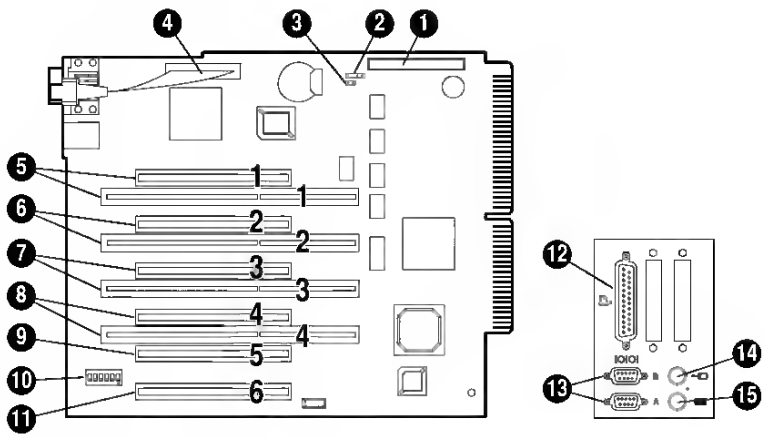

Figure 3-21. Expansion system board

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Table 3-2
Expansion System Board Components

Item	Component	Item	Component
1	I^2O Connector	9	PCI Connector
2	Replacement Battery Connector	10	SW1 Configuration Switch
3	Replacement Battery Jumper	11	PCI Connector
4	Parallel Adapter Cable	12	Parallel Connector
5	PCI/ISA Shared Connectors	13	Serial A and B Connectors
6	PCI/ISA Shared Connectors	14	Mouse Connector
7	PCI/ISA Shared Connectors	15	Keyboard Connector
8	PCI/ISA Shared Connectors		

Table 3-3
SW1 Configuration Switch Settings

SW1 Setting - Default	Function
1 - OFF	Disable On-Board Video
2 - OFF	Lock Configuration Information
3 - OFF	Reserved
4 - OFF	Disable Floppy
5 - OFF	Disable Password
6 - OFF	Clear NVRAM

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Compaq System Board

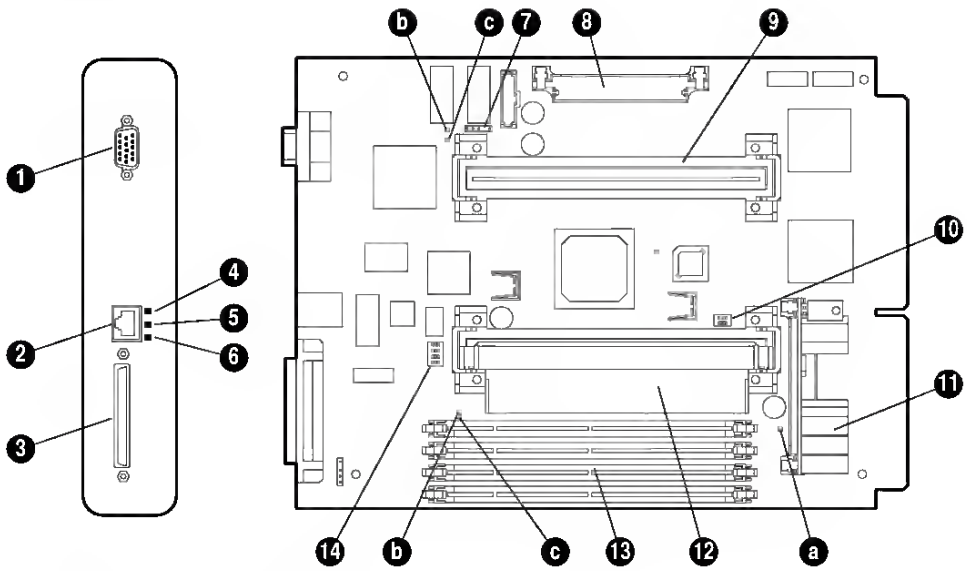

Figure 3-22. Compaq System Board

Table 3-4
Compaq System Board Components

Item	Component	Item	Component
1	Video Connector	10	Bus Ratio Switch - SW2
2	RJ-45 Connector	11	Processor Power Module (Installed)
3	SCSI External (B) Connector	12	Processor 1
4	NIC Active LED	13	DIMM Slots (1-4)
5	NIC Link LED	14	Switch-Core/Bus Ratio - SW1
6	NIC 10/100 Speed LED	a	LED - Processor On
7	Fan Connector	b	LED - Processor Error
8	Processor Power Module Socket	c	LED - Processor Thermal Overload

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9	Processor 2 Slot

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Table 3-5
Bus/Core Frequency Ratio Switches SW1 and SW2

Bus/Core Frequency Ratio	SW1 1	SW1 2	SW1 3	SW1 4	SW2
100/350 MHz	ON	ON	OFF	OFF	OFF
100/400 MHz	ON	OFF	ON	ON	OFF
100/450 MHz	ON	OFF	OFF	ON	OFF

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Chapter 4
SCSI Cabling Instructions for Mass Storage SCSI Devices

ProLiant 800 servers use three areas for connecting mass storage SCSI devices: internally with the removable media area, internally with the hard drive cage, and externally with external storage devices. All of the required SCSI cabling equipment you will need to install Compaq mass storage devices is shipped with your Compaq server and the Compaq mass storage SCSI device option kits.

Wide to Standard SCSI Cable Adapter for Using Fast-SCSI-2 Devices

To enable the use of Fast-SCSI-2 devices in the removable media area with the Integrated Wide-Ultra SCSI-3 Controller, an adapter is required between the Wide SCSI cable and the SCSI device. This adapter, part number 199618-001, is placed directly between the SCSI cable and the device. The adapter is included in the hardware kit of the server shipping box or may be obtained from your local Compaq Reseller or Authorized Compaq Service Provider.

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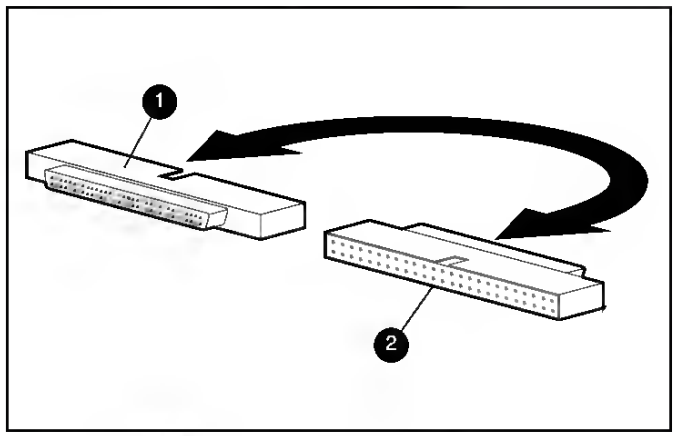

Figure 4-1. Wide to standard SCSI cable adapter

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SCSI Device Installation Guidelines

The following guidelines should be noted when adding SCSI devices:

- As a general rule, a maximum of seven devices may be added per controller. Because each server has different physical and configuration constraints, the maximum number of SCSI devices may vary for your server.
- The configuration switches on each hard drive must be set to the SCSI ID of the bay (Bay 0 = SCSI ID 0) that it will occupy.
- If only one SCSI hard drive is used, it should be installed in the lowest-numbered bay.
- Be sure to remove all terminating jumpers from third-party SCSI devices.
- Run System Configuration Utility after installing a drive.

Determining SCSI Cabling Requirements

Answer all of the following questions about the mass storage device you will be installing to determine SCSI information requirements.

1. Will the SCSI cabling need be internal or external. See the appropriate internal cabling or external cabling section in this chapter.
2. Will the Integrated Wide-Ultra SCSI-3 Controller be used? If yes, see the following section, "Internal SCSI Cabling of the Integrated Wide-Ultra SCSI-3 Controller," for SCSI cabling instructions.
3. Will a separate SCSI controller expansion board be used? If yes, see to option documentation supplied with the controller and to the cabling tables that follow for SCSI cabling instructions.

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4. Identify the internal SCSI drive type and expansion slot to be used.
   - ❑ Non-hot-pluggable SCSI hard drives can be installed in the drive cage and removable media area.
   - ❑ Fast SCSI-2 devices require the SCSI adapter, PN 199618-001, when using the Integrated Wide-Ultra SCSI-3 Controller
   - ❑ SCSI tape drives are installed in the removable media area.
   - ❑ SCSI CD-ROM drives are installed in the removable media area.
   - ❑ Separate SCSI controller boards are installed in the expansion slots.
5. Is the internal SCSI mass storage device a Fast SCSI-2 device? If yes, an adapter (PN 199618-001) will be needed if you will be using the Integrated Wide-Ultra SCSI-3 Controller or a wide SCSI controller board.

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Connecting the Integrated Wide-Ultra SCSI-3 Controller to SCSI Devices

Refer to the following table for an overview of cabling SCSI devices internally to the Integrated Wide-Ultra SCSI-3 Controller. Table 4-1 assumes that the controller end of the Wide SCSI cable has not been connected to the Integrated Wide-Ultra SCSI-3 Controller.

Table 4-1
Cabling the Integrated SCSI Controller to Internal SCSI Devices

NHP* Hard Drives	** Selected Fast-SCSI-2 Tape Drives and SCSI CD-ROM Installed in Removable Media Area
1. Locate the Wide SCSI cable. No additional cables are required.	1. Locate the Wide SCSI cable. No additional cables are required.
2. Connect controller end of Wide SCSI cable to Integrated SCSI Controller.	2. Connect controller end of Wide SCSI cable to Integrated SCSI Controller.
3. Connect wide to standard cable adapter, if needed.	3. Connect wide to standard cable adapter to device.
4 Connect an available connector on SCSI cable to the device(s).	4 Connect an available connector on SCSI cable to the device(s) in the removable media area.
5. Ensure SCSI ID uniquely set on each device.	5. Ensure SCSI ID uniquely set on each device.
6. Run System Configuration Utility.	6. Run System Configuration Utility.

* NHP = Non-hot-pluggable

** Selected drives: 2/4 and 4/8 DAT drive, 4/16 TurboDAT drive autoloader

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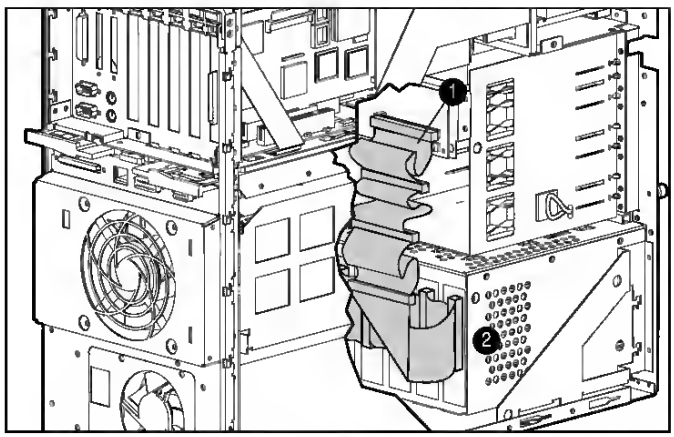

Figure 4-2. SCSI bus connector ❶ attached to removable media area and drive cage ❷

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Internal SCSI Cabling of the 32-Bit Fast-Wide SCSI-2 Controller/P and the Wide-Ultra Controller/P

Refer to the following table and figure for an overview of cabling the 32-Bit Fast-Wide SCSI-2 Controller/P and the Wide-Ultra SCSI Controller/P to the internal SCSI devices. Table 4-2 assumes that the controller end of the Wide SCSI cable has not been connected to the Integrated Wide-Ultra SCSI-3 Controller.

Table 4-2
Cabling of 32-Bit Fast-Wide SCSI-2 Controller/P and Wide-Ultra Controller/P to Internal SCSI Devices

NHP* Hard Drives	** Selected SCSI Tape Drives and SCSI CD-ROM Drive Installed in Removable Media Area
1. Locate the Wide SCSI cable. No additional cables are required.	1. Locate the Wide SCSI cable. No additional cables are required.
2. Connect controller end of Wide SCSI cable to 32-Bit Fast-Wide SCSI-2 Controller/P or Wide-Ultra Controller/P board.	2. Connect controller end of Wide SCSI cable to 32-Bit Fast-Wide SCSI-2 Controller/P or Wide-Ultra Controller/P board.
3. Connect wide to standard cable adapter to device end of SCSI cable, if needed.	3. Connect wide to standard cable adapter to device end of SCSI cable, if needed.
4 Connect an available connector on SCSI cable to device(s).	4 Connect an available connector on Wide SCSI cable to device(s) in the removable media area.
5. Ensure SCSI ID uniquely set on each device.	5. Ensure SCSI ID uniquely set on each device.
6. Run System Configuration Utility.	6. Run System Configuration Utility.

* NHP = Non-hot-pluggable

** Selected drives: 2/4 and 4/8 DAT drive, 4/16 TurboDAT drive autoloader

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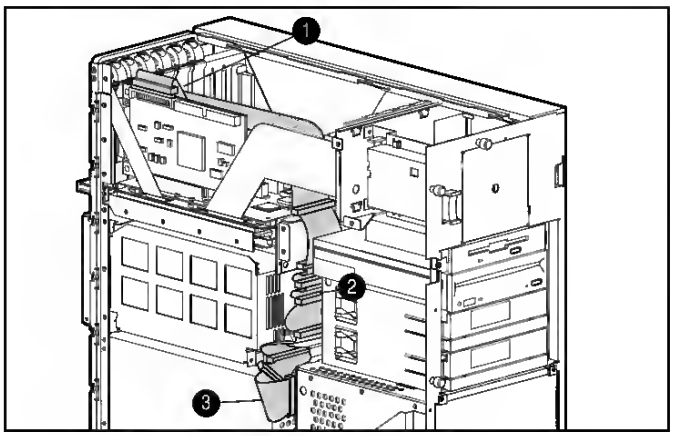

Figure 4-3. 32-Bit Fast-Wide Controller ❶ connected to removable media area ❷ and NHP drive cage ❸

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SCSI Cabling of a SMART-2 Array Controller Board

Refer to the following table and figure for an overview of cabling the SMART-2 Controller to internal SCSI devices. Table 4-3 assumes that the controller end of the Wide SCSI cable has not been connected to the Integrated Wide-Ultra SCSI-3 Controller.

Table 4-3
Cabling of SMART-2 Controller to Internal SCSI Devices

NHP* Hard Drives	Selected SCSI Tape Drives and SCSI CD-ROM Installed in Removable Media Area
1. Locate the Wide SCSI cable. No additional cables are required.	Not Supported.
2. Connect controller end of Wide SCSI cable to SMART-2 Controller.	
3. Connect wide to standard cable adapter to device end of SCSI cable, if needed.	
4. Connect an available connector on Wide SCSI cable to the device(s).	
5. Ensure SCSI ID uniquely set on each device.	
6. Run System Configuration Utility.	

* NHP = Non-hot-pluggable

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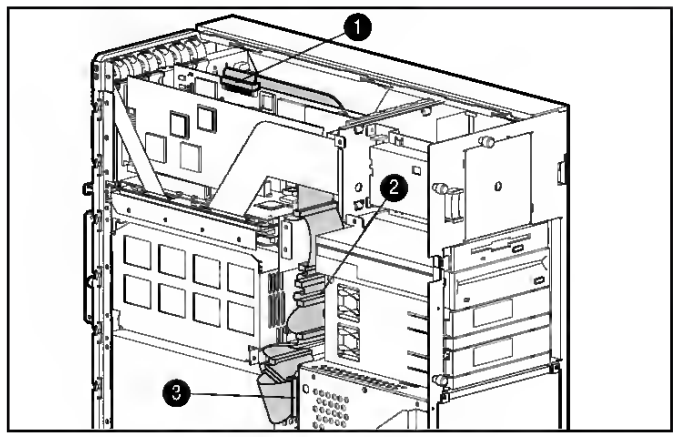

Figure 4-4. SCSI Cabling: SMART-2 Controller ❶ to removable media area ❷ and NHP drive cage ❸

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External SCSI Cabling of the External SCSI Connector to Storage Devices

Optional mass storage SCSI devices such as the Compaq ProLiant Storage Systems can be connected to the server by using the external SCSI connector on the back of the unit. To connect to an external storage device, refer to the installation documentation that came with the external storage device.

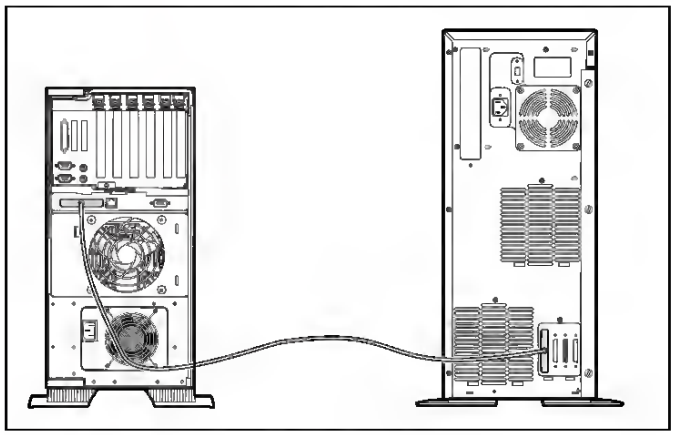

Figure 4-5. Connecting the external SCSI to a storage device

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External SCSI Cabling of a SMART-2 Array Controller to Storage Devices

Compaq SMART-2 Array Controllers are configured with one or two SCSI buses. The SMART-2SL Array Controller is configured with one SCSI bus, which may be connected to internal or external SCSI devices, but not both at the same time. The SMART-2DH and SMART-2/P Array Controllers are configured with two SCSI buses, an internal and an external. One or both buses may be available for connection to external storage devices. If you want both buses to control devices external to the server, you will need to bring access of the internal SCSI bus on the controller to rear of the server.

To use both SCSI buses on a SMART-2DH or SMART-2/P controller:

1. Remove a blank expansion slot cover from the rear of the unit, as shown in Figure 4-6.
2. Locate the internal/external Wide SCSI cable in the option kit, and connect the cable by attaching one end of the cable to the internal connector on the controller and the other end to the rear of the server. See Figure 4-6.

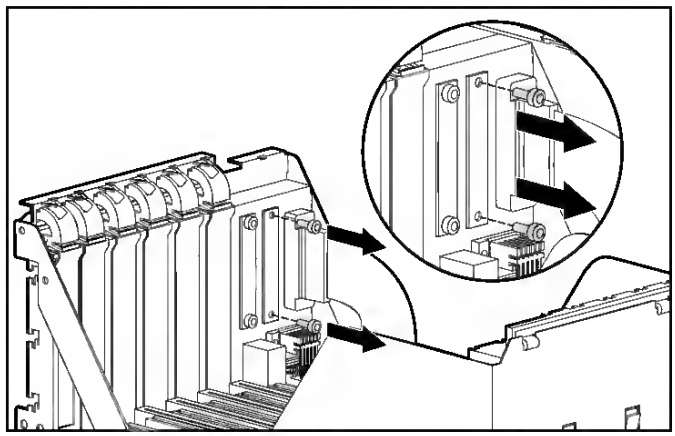

Figure 4-6. Removing the connector slot cover

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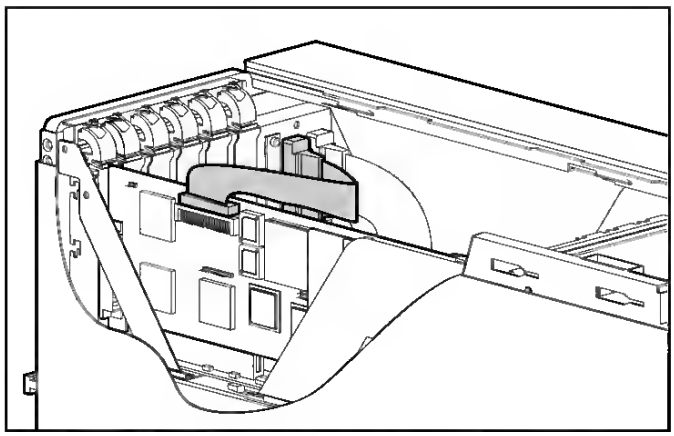

Figure 4-7. Attaching the Internal/External SCSI cable

You now have both of the SMART-2 Controller SCSI buses at the rear of the server. The SCSI bus can then be connected to external storage devices. You also have the Integrated Wide-Ultra SCSI-3 Controller available for connection to SCSI devices.

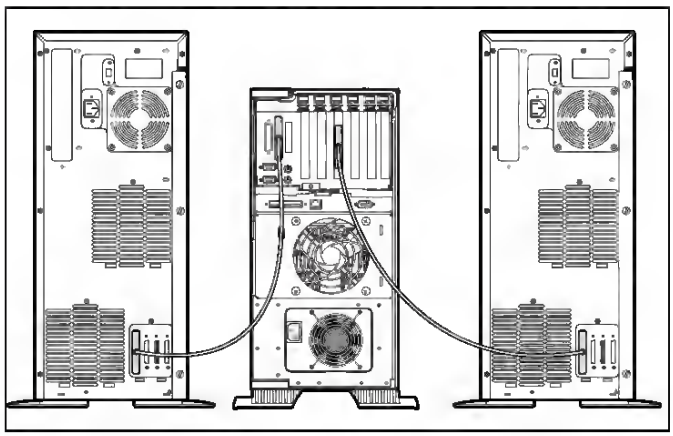

Figure 4-8. Connecting both SMART-2 Array Controller SCSI buses to external storage devices

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Chapter 5
Integrated Management Log

The Compaq Integrated Management Log (IML) records events and stores them in an easily-viewable form. The Integrated Management Log records hundreds of events and then marks each event with a time-stamp with one-minute granularity.

Events listed in the Integrated Management Log are categorized as one of four event severity levels:

- Status—indicates that the message is informational only.
- Repaired—indicates that corrective action has been taken.
- Caution—indicates a non-fatal error condition.
- Critical—indicates a component failure.

The Integrated Management Log requires Compaq operating system-dependent drivers. Refer to the Compaq SmartStart and Support Software CD for instructions on installing the appropriate drivers.

Multiple Ways of Viewing the Log

You can view an event in the Integrated Management Log in two ways:

1. From within Compaq Insight Manager
2. From within Compaq Survey Utility

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Compaq Insight Manager

Compaq Insight Manager is a server management tool, providing in-depth fault, configuration, and performance monitoring of hundreds of Compaq servers from a single management console. System parameters that are monitored describe the status of all key server components. By being able to view the events that may occur to these components, you can take immediate action. You can view and print the event list from within Compaq Insight Manager by following the instructions below. You can also mark a critical or caution event as repaired after the affected component has been replaced, for example, if a fan that has failed has been replaced. By marking it as repaired, you can lower the severity of the event.

Viewing the Event List

1. From Compaq Insight Manager, select the appropriate server, then select View Device Data.

   The selected server is displayed with buttons around its perimeter.

2. Select the Recovery button.
3. Select Integrated Management Log.

NOTE: You can only view the list from the Recovery/Integrated Management screen. To print the list, follow the instructions below.

4. If a failed component has been replaced, select the event from the list, then select Mark Repaired.

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Printing the Event List

NOTE: You can only view the list from the Recovery/Integrated Management Log screen as described above. To print the list, follow the instructions below.

1. From Compaq Insight Manager, select the appropriate server.

   The selected server is displayed with buttons around its perimeter.

2. Click the Configuration button.
3. Click the Recovery button.
4. Select Print.

Compaq Survey Utility

The Compaq Survey Utility is a serviceability tool available for Microsoft Windows NT and Novell NetWare that delivers online configuration capture and comparison to maximize server availability. It is delivered on the Compaq Management CD in the Server Setup and Management pack, or is available on the Compaq web site. Refer to the Compaq Management CD for information on installing and running the Survey Utility.

After you have run the Survey Utility, you can view the Integrated Management Log by loading the output of the utility (typically called "SURVEY.TXT") into a text viewer such as Microsoft Notepad. The event list follows the system slot information. Once you have opened the text file, you can print it using the print feature of the viewer.

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List of Events

The event list displays the affected components and the associated error messages. Though the same basic information is displayed, the format of the list may be different depending on how you are viewing it: from within Compaq Insight Manager or from within the Compaq Survey Utility.

The table on the following page identifies the event types (affected components) and associated event messages. This table includes all events that could occur for all Compaq servers. Some events may not be applicable to your model.

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Table 5-1
Event Messages

Event Type	Event Message
Machine Environment	
Fan Failure	System Fan Failure (Fan X, Location)
Fan Inserted	System Fan Inserted (Fan X, Location)
Fan Removed	System Fan Removed (Fan X, Location)
Fans Not Redundant	System Fans Not Redundant
Overheat Condition	System Overheating (Zone X, Location)
Main Memory	
Correctable Error threshold exceeded	Corrected Memory Error threshold passed (Slot X, Memory Module X)
	Corrected Memory Error threshold passed (System Memory)
	Corrected Memory Error threshold passed (Memory Module unknown)
Uncorrectable Error	Uncorrectable Memory Error (Slot X, Memory Module X)
	Uncorrectable Memory Error (System Memory)
	Uncorrectable Memory Error (Module unknown)
Processor	
Correctable Error Threshold exceeded	Processor Correctable Error Threshold passed (Slot X, Socket X)
Uncorrectable Error	
Host Bus Error	Processor Uncorrectable internal error (Slot X, Socket X)
	Unrecoverable Host Bus Data Parity Error
	Unrecoverable Host Bus Address Parity Error
PCI Bus Error	PCI Bus Error (Slot X, Bus X, Device X, Function X)

continued

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Event Messages *continued*

Event Type	Event Message
POST Error	POST Error: Error message
Power Subsystem	
Power Supply Failure	System Power Supply Failure (Power Supply X)
Power Supply Inserted	System Power Supply Inserted (Power Supply X)
Power Supply Removed	System Power Supply Removed (Power Supply X)
Power Supply Not Redundant	System Power Supplies Not Redundant
System Configuration Battery Low	Real-Time Clock Battery Failing
Power Module Failure	A CPU Power Module (System Board, Socket X)
	A CPU Power Module (Slot X, Socket X)
Power Modules Not Redundant	System Power Modules Not Redundant
AC Voltage Problem	System AC Power Problem (Power Supply X)
Power AC Overload	System AC Power Overload (Power Supply X)
Automatic Server Recovery	
System Lockup	ASR Lockup Detected: Cause
Operating System	
System Crash	Blue Screen Trap: Cause [NT]
	Kernel Panic: Cause [UNIX]
	Abnormal Program Termination: Cause [NetWare]
Automatic OS Shutdown	Automatic Operating System Shutdown Initiated Due to Fan Failure
	Automatic Operating System Shutdown Initiated Due to Overheat Condition
	Fatal Exception (Number X, Cause)

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Appendix A
Compaq ProLiant 800 Servers Setup and Installation Guide

Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (i.e., personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC logo or FCC ID on the label. Class A devices do not have an FCC logo or ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

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Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Declaration of Conformity for Products Marked with FCC Logo, United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. For questions regarding this declaration, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

Or call (281) 514-3333

To identify this product, refer to the Series number found on the product.

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Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian Notice (Avis Canadien)

Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN55022 (CISPR 22) - Electromagnetic Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity
- EN60950 (IEC950) - Product Safety

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Japanese Notice

お使いになっている装置にＶＣＣＩマークが付いていましたら、次の説明文をお読み下さい。

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Australian Notice

This customer equipment is to be installed and maintained by service personnel as defined by AS/NZS 3260 Clause 1.2.14.3. Service Personnel. Incorrect connection of connected equipment to the General Purpose Outlet could result in a hazardous situation.Safety requirements are not fulfilled unless the equipment is connected to a wall socket outlet with protective earth contact.

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Laser Devices

The CD-ROM drive contains a laser device. All Compaq systems equipped with a laser device comply with safety standards, including International Electrotechnical Commission (IEC) 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. The product does not emit hazardous light; the beam is totally enclosed during all modes of customer operation and maintenance.

Laser Safety Warnings

WARNING: To reduce the risk of fire, bodily injury, and damage to the equipment, observe the following precautions:

- Do not operate controls, make adjustments, or perform procedures to a laser device other than those specified herein or in the CD-ROM drive installation guide.

- Allow only Compaq Authorized Service Technicians to repair the laser equipment.

Compliance with CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

Compliance with International Regulations

All Compaq systems equipped with CD-ROM drives comply with appropriate safety standards including IEC 825.

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Laser Product Label

The following label or equivalent is located on the surface of your CD-ROM drive.

This label indicates that the product is classified as a CLASS 1 LASER PRODUCT. This label appears on a laser device installed in your product.

Laser Information

Laser Type	Semiconductor GaAlAs
Wave Length	780 nm +/- 35 nm
Divergence Angle	53.5 degrees +/- 0.5 degrees
Output Power	[1]Less than 0.2 mW /10,869 $W \cdot m^{2}$ sr
Polarization	Circular 0.25
Numerical Aperture	0.45 inches +/- 0.04 inches

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Battery Replacement Notice

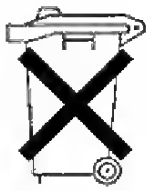
Your computer is provided with a battery powered Real-Time Clock circuit. There is a danger of explosion and risk of personal injury if the battery is incorrectly replaced or mistreated. Replacement is to be done by a Compaq Authorized Service Provider using the Compaq spare designated for this product. For more information about Real-Time Clock battery replacement or proper disposal, contact your Compaq Authorized Reseller or your Authorized Service Provider.

The computer contains an internal Lithium Manganese battery. Replacement of the internal battery should be done by a Compaq Authorized Service Provider.

WARNING: To reduce the risk of personal injury, do not attempt to recharge the battery, disassemble it, immerse it in water, or dispose of it in fire.

Your computer contains an internal Lithium Manganese battery pack. There is risk of fire and burns if the battery pack is not handled properly. Replace only with the Compaq spare designated for this product.

WARNING: To reduce the risk of personal injury, do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water. Do not expose to temperatures higher than 60°C.



Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. In order to forward them to recycling or proper disposal, please use the public collection system or return them to Compaq, your authorized Compaq Partners, or their agents.

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Mouse Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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Appendix B
Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ± 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.

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- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an Authorized Compaq Reseller install the part.

NOTE: For more information on static electricity, or assistance with product installation, contact your Authorized Compaq Reseller.

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Appendix C
Power Cord Set Requirements

The power cord set meets the requirements for use in the country where you purchased your equipment. The voltage selection switch allows you to select the appropriate line voltage for your server.

Power cord sets for use in other countries must meet the requirements of the country where you use the server. For more information on power cord set requirements, contact your Authorized Compaq Dealer.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord must be at least 6.0 feet (1.8 m) and a maximum of 12 feet (3.7 m).
- The power cord set must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord will be used.
- The power cord set must have a minimum current capacity and nominal voltage rating of 10 A/125 volts AC, or 10A/250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN60320/IEC 320 Standard Sheet C13 Connector, for mating with the appliance outlet on the computer.

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Country-Specific Requirements

Use the following table to identify the appropriate accredited agency in your country.

Table C-1
Power Cord Set Requirements - By Country

Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	SETI	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United	BSI	1
United States	UL	2

Notes:

1. Flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm^2 conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.

2. Flexible cord must be Type SVT or equivalent, No. 18 AWG, 3-conductor. Wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V).

3. Appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 1.0 mm^2 conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7A, 125V) configuration.

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Appendix D
Specifications and Connector Interfaces

This appendix provides operating and performance specifications for Compaq ProLiant 800 servers. Also provided are the connector interfaces.

For other specifications, refer to the Systems Reference Library CD.

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Table D-1
Specifications

Dimensions		
Height (without feet)	17.92 in	45.52 cm
Depth	22.67 in	57.58 cm
Width	8.83 in	22.43 cm
Weight		
No Drives Installed	50.0 lb	22.68 kg
Input Requirements		
Rated Input Voltage	100 to 240 VAC	
Rated Input Frequency	50 - 60 Hz	
Rated Input Current	6 - 3 A	
Power Supply Output Power		
Rated Steady-State Power	325 W	
Maximum Peak Power	425 W	
Temperature Range		
Operating	50° to 95° F	10° to 35° C
Shipping	-22° to 122° F	-30° to 50° C
Relative Humidity (noncondensing)		
Operating	8% to 90%	8% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum Wet Bulb Temperature	101.7° F	38.7° C

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Connector Interfaces

For the pinouts and signals of these connector interfaces, refer to the Systems Reference Library CD:

- Keyboard (hot-pluggable)
- Pointing Device (Mouse)
- Serial (2)
- Parallel
- Monitor
- External SCSI-2 Connector
- Ethernet (RJ-45)
- Video

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